Midwifery Research Review™

RESEARCH REVIEW 10 YEARS
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Making Education Easy

Issue 13 – 2016

In this issue:

Abbreviations used in this issue
CS = caesarean section
DHB = District Health Board
OC = oral contraceptive
RCT = randomised controlled trial
WHO = World Health Organisation

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Welcome to the latest issue of Midwifery Research Review.

A number of interesting and varied studies from different countries have been selected for this issue, starting with a look at maternal OC use and risk of birth defects. This is followed by a study of the long term impact of antenatal multiple micronutrients supplementation in low- to middle-income countries, rates of CS after labour induction in uncomplicated births, induced labour trends in Sweden, perineal pain relief after ice pack application, the OPPTIMUM study of vaginal progesterone use for preterm birth, and clinical risk factors for pre-eclampsia determined in early pregnancy.

I hope you enjoy these and the other selected studies and look forward to any feedback you may have.

Kind regards,

Nimisha Waller
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Maternal use of oral contraceptives and risk of birth defects in Denmark

Authors: Charlton B et al.

Summary: This nationwide cohort study investigated whether the use of OCs around the time of pregnancy onset is associated with an increased risk of major birth defects. Data on OC use and major birth defects were collected for 880,694 live births in Denmark in 1997–2011. Women were divided into 4 groups according to OC use: never users, used >3 months before pregnancy onset (reference group), used 0–3 months before pregnancy onset (recent use), and used after pregnancy onset. The prevalence of major birth defects (per 1000 births) was consistent across each OC exposure group: 25.1, 25.0, 24.9, and 24.8, respectively. No increase in major birth defects was seen with OC exposure among women with recent use before pregnancy or use after pregnancy onset compared with the reference group.

Comment: It was 56 years ago (1961) that oral contraception was first prescribed in NZ. More than 100 million women worldwide and between 140,000–200,000 women in NZ use OCs. Oral contraception with perfect use can be 99% effective. Many women will stop using OCs when they are planning a pregnancy and may get pregnant straight away or within a few menstrual cycles. About 9% of women who use OCs may become pregnant in their first year of use due to missed or delayed doses, drug interactions or illness. Midwives and other practitioners are at some stage likely to be informed by women that they are pregnant and have been taking oral contraception at the time of onset of pregnancy and/or used contraception after pregnancy onset. Though the majority of previous studies have reported no association between OC use during pregnancy and birth defects, some studies have reported increased risk of hypoplastic left heart syndrome, gastroschisis, neural tube defects, limb reduction defects and urinary tract anomalies. There is also concern regarding exposure to exogenous sex hormones and how long the effects of these hormones last. Exogenous sex hormones have been shown to increase plasma vitamin A levels (which can be teratogenic) and reduce serum folate levels, which can remain reduced up to 3 months after stopping the OC. This could increase women's chances of having babies with a range of birth defects. In this national Danish study all OCs including less common forms of the progesterone-only pill as well as emergency contraception were considered. Their findings that recent OC use (<3 months before pregnancy) or use during early pregnancy will not increase the risk of having a baby with a major birth anomaly supports previous studies that have found no such association. This information should reassure women and practitioners.

Reference: BMJ 2016;352:h6712

Abstract

Maternal antenatal multiple micronutrient supplementation for long-term health benefits in children

Authors: Devakumar D et al.

Summary: This systematic review and meta-analysis examined the effects of multiple micronutrient supplementation in pregnancy. A search of trials used in a 2015 Cochrane Review of multiple micronutrient supplementation in pregnancy identified 20 follow-up reports of 9 trials (n=88,057) that were suitable for meta-analysis. The intervention comprised ≥3 micronutrients, and the comparison group received iron and folic acid where possible. Median gestation at commencement varied from 9–23 weeks. Meta-analysis of data for offspring mortality showed no difference between intervention and comparison groups. Six trials that investigated anthropometry found no difference at follow-up in weight-for-age z score, height-for-age z score, or head circumference. No between-group differences were seen in body composition, respiratory outcomes or cognitive function scores.

Independent commentary by Nimisha Waller
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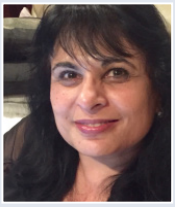

Nimisha Waller is a Senior Lecturer in the Dept of Midwifery, Faculty of Health and Environmental Science at AUT University. She has practised midwifery in tertiary units and as an LMC. She has been a supervisor and a member of the competency review panel for MCNZ, reviewer for NZCOM Midwifery Standards Review and an NZCOM educator for the Midwifery First Year Practice (MYFP). She is an expert advisor and an Academic member/ Deputy Chair on the MOH Compliance panel that monitors the Code in New Zealand (Breastfeeding). Nimisha has a particular interest in maternal wellbeing, diabetes and obesity, newborn, postnatal distress, traumatic birth and PTSD. Her doctoral study is on post–birth conversation between midwives and women and the impact it has on them.

Comment: Two billion people worldwide have micronutrient (vitamin and mineral) deficiency. Many reside in low and middle-income countries (LMICs). Though micronutrients are required in very small quantities for physiological functions, growth and development, their deficiency is very common during pregnancy due to increased nutrient requirement of the mother and the growing baby. The WHO and a 2015 Cochrane Review suggest there is strong evidence that giving multiple micronutrient (MMN) supplements in pregnancy to women who have micronutrient deficiency may reduce the risk of low birthweight and small size for gestational age, compared with iron and folic acid supplements alone. So do MMN recommended for pregnant women in LMICs lead to sustained improvements in child health predicted by an increase in birthweight? For this review, the authors searched for reports that followed up the trials included in the 2015 Cochrane Review focusing on childhood mortality and health-related outcomes (growth, body composition, cardio-metabolic risk markers, cognition, lung function). They hypothesised that, compared with iron and folic acid supplements, antenatal MMN supplements would lead to longer-term improvements in health and survival. However, they found no evidence that antenatal MMN supplements improved survival, growth, blood pressure, or lung function in childhood compared with iron and folic acid supplementation. Potential improvements in cognitive outcomes were observed, but these were small and inconsistent. Though there is consistent evidence that antenatal MMN supplementation increases birthweight (22–54g), none of the studies demonstrated convincingly that it benefitted offspring in terms of functional or health outcomes. The authors state that as may be expected, the erosion over time of anthropometric differences (weight, height and length) observed at birth suggests that infants of women who received antenatal MMN supplements lost an advantage over the first few years. This could be the result of numerous environmental stresses over postnatal life. More evidence is needed, especially on cognitive development, cardiovascular risk markers and lung function, to adequately appraise the long-term effects of antenatal MMN supplementation. This study highlights the importance of considering the long-term benefits of any interventions we implement.

Reference: BMC Medicine 201614:90
Abstract

Caesarean section following induction of labour in uncomplicated first births – a population-based cross-sectional analysis of 42,950 births

Authors: Davey M-A & King J

Summary: This Australian study evaluated the impact of elective induction of labour at term on CS rates. 42,950 singleton first births that occurred at 37–40 weeks' gestation (standard primiparae) in Victoria in 2000–2005 were reviewed. 10% of standard primiparae had labour induced for no apparent medical reason. Women whose labour was induced were more likely to have a CS than those who laboured spontaneously (26.5% vs 12.5%; odds ratio 2.54; p<0.001). After adjustment for confounding factors, each method of induction or augmentation remained associated with a significant increase in the risk of CS.

Comment: According to the WHO, over recent decades more pregnant women (especially in developed countries) have undergone induction of labour (IOL). WHO recommends induction of labour only when there is a clear medical indication and the expected benefits outweigh the potential harm. The NZ Maternity Report suggests 1 in 5 women had IOL in 2010 and the National Women's Health annual report suggests 1 in 3 women had IOL in 2013. Approximately 15% of women giving birth in NZ are considered to be standard primiparae. NZ Maternity Clinical Indicators (NZMCI) reports that from 2009 to 2014, there was an increase in the proportion of standard primiparae who had an IOL and there was a decrease in the proportion of standard primiparae who had spontaneous vaginal birth. The rate of IOL among standard primiparae is one of the clinical maternity indicators identified by the NZ Ministry of Health, as part of its national quality and safety programme for maternity services. The National Women's Health annual report (2013) comments that when post-dates was stated to be the primary indication for induction, 11.8% of inductions occurred prior to 41 weeks of pregnancy. Audit of the inductions which occur prior to 41 weeks, where 'post-dates' is stated as the primary indication, found that 'post-dates' sometimes disguises secondary indications, which are of greater significance to the decision, such as hypertension. The report comments on the importance of reviewing/auditing induction indications and processes to increase clarity. In this study, women in Victoria had no apparent medical conditions or any complications in pregnancy to have IOL. The findings from this study provide an opportunity to reflect/audit not only on what is happening in NZ DHBs and nationally regarding the number of women having IOL but also the number of women having unindicated IOL before 41 weeks' gestation and the impact on CS rates. Do we have clarity in our data that enables us to identify unindicated IOL before 41 weeks of pregnancy? What impact does unindicated IOL prior to 41 weeks of pregnancy have on babies and their admission to Neonatal Intensive Care Units?

Reference: BMC Pregnancy Childbirth 2016;16:92
Abstract

Induced labor in Sweden, 1999–2012

Authors: Ekéus C & Lindgren H

Summary: This population-based cohort study examined trends in the rate of induced labour in Sweden over a 14-year period from 1999 to 2012. A register-based cohort study was conducted in 1,078,536 women with spontaneous or induced onset of labour at ≥37 weeks' gestation. From 1999 to 2012, the rate of induced labour increased from 7.7% to 12.9% among primiparous women and from 7.5% to 11.8% among multiparous women. Induced labour was associated with a 2- to 3-fold higher risk of unplanned caesarean delivery, and a 20–50% higher risk of vacuum extraction.

Comment: I chose this study as it provides information on the change in rates of induction of labour (IOL) over 14 years in Sweden and why this may be the case, as well as reports on the rates of CS and vacuum extraction when women have IOL. Over the 14-year period the IOL rate in Sweden increased by 60%. In almost half of IOL there was no medical condition documented. The authors suggest that this could be related to not including those conditions in the study, or they were induced due to non-medical reasons such as previous traumatic birth, other psychological issues or distance to the hospital. It is not clear why the rate of IOL has increased and it is likely to be multifactorial. They noted an increased rate of IOL with advanced maternal age, body mass index and change in clinical practice over time. The rates of CS were 3 times higher in primipara women who were induced and 2.5 times higher in multipara women. This study supports the finding of the previous study that there is an increased risk of CS when a woman has IOL without a documented medical condition. The rate of vacuum extraction was 40% higher in all groups except in multiparas at 37–38 weeks' gestation. As information about the type of induction (e.g. prostaglandin, oxytocin) was not available from their registers they cannot conclude that all types of IOL increased CS and vacuum extraction rates. Women who are counselled about the risk and benefits of IOL should be informed not just about the increased risk of CS but also of the increased risk of vacuum extraction. It is likely that the increased rate of vacuum extractions may be seen by many women and practitioners as "normal" as the baby is born vaginally. It highlights the importance of having an additional category of "other" to capture fuller information (e.g. in this study, "other" reasons for IOL) as well as discussing/reflecting on what has changed in clinical practice over time to increase IOL rates particularly in developed countries. We keep saying they are too high but every year we are noticing an increase!

Reference: Birth 2016;43(2):125-33
Abstract

Length of perineal pain relief after ice pack application

Authors: de Souza BPC et al.

Summary: This Brazilian study examined the duration of perineal pain relief achieved after postpartum ice pack application. An ice pack was applied for 20 min to the perineal area of 50 women who reported perineal pain ≥3 on a numeric rating scale (0–10), between 6 and 24h after spontaneous vaginal birth. Perineal pain decreased immediately after applying the ice pack to the perineal area (5.4 vs 1.0; p<0.0005). The pain reduction was maintained for up to 2h after application.

Comment: Following vaginal birth, women can experience varying levels of perineal pain irrespective of whether they have intact perineum or mild, moderate, or severe perineal injury. It is suggested that postpartum perineal pain can commence in the first few hours after birth and may persist for up to 1 year. It is one of the most common morbidities reported for postnatal women. Ice packs or cooling therapies (cryotherapy) have been used in the postpartum period to relieve perineal pain and have been investigated in several studies. However, treatment protocols vary widely regarding temperature, frequency and duration of the application. The 2012 Cochrane Review analysed 10 RCTs comparing the effectiveness of local cooling treatments applied to the perineum with no treatment and other local and systemic treatments. The authors found that cooling therapies are effective in the first 3 days after birth. There appeared to be no clear evidence to make a recommendation about the interval time between ice pack applications to the perineal region, and evidence was limited to support the effectiveness of local cooling therapies (ice packs, cold gel pads, cold/iced baths) applied to the perineum following childbirth to relieve pain. This study examined whether perineal analgesia was maintained up to 2 hours after applying an ice pack to the perineum for 20 minutes following a spontaneous vaginal birth. The study found that immediately after applying an ice pack there was a significant reduction in the severity of perineal pain which continued for up to 2 hours. If offering icepacks for perineal pain, it appears they may require application for 20 minutes every 1–2 hours.

Reference: Women Birth 2016;29(2):117-22
Abstract

Vaginal progesterone prophylaxis for preterm birth (the OPPTIMUM study)

Authors: Norman J et al.

Summary: This study examined whether using vaginal progesterone to reduce the risk of preterm birth affects neonatal and childhood outcomes. 1228 women at risk for preterm birth were randomised in a double-blind design to receive placebo or vaginal progesterone 200mg daily from 22–34 weeks' gestation. After correction for multiple outcomes, progesterone had no significant effect on the primary obstetric outcome (fetal death or birth before 34 weeks' gestation), the neonatal outcome (a composite of death, brain injury, or bronchopulmonary dysplasia), or the childhood outcome (a standardised cognitive score at 2 years of age).

Comment: Preterm birth is a global problem, with a prevalence of 8–12% depending on geography. In a large tertiary facility in Auckland, 7–10% of all deliveries end in preterm birth and 1% deliver at <32 weeks' gestation (ADHB 2013–2015). Several large trials and systematic reviews have shown progesterone to be effective in preventing or delaying preterm birth in selected high-risk women with a singleton pregnancy (including those with a short cervix [<25mm] or previous preterm birth). Most DHB guidelines in NZ mention progesterone 100mg (Utrogestan® capsules) inserted vaginally once a day until 34 weeks' gestation as being a drug of choice to prevent preterm labour. Despite the OPPTIMUM trial using 200mg of vaginal natural progesterone daily from 22–34 weeks' gestation (100mg more than currently suggested in most DHB guidelines) it has shown that vaginal progesterone had no obstetrical or neonatal benefit and no long-term benefit with respect to cognitive and neurosensory outcomes in children when used to prevent preterm birth. This is the largest trial to date and its findings will be a surprise to many practitioners across the world involved in obstetric care as it has implications for practice. Practitioners will need time to review the full trial results to see if any changes to using vaginal natural progesterone to prevent preterm birth need to be made. It needs to be noted that vaginal progesterone for women with short cervix was not the focus of this study and use of 17-hydroxyprogesterone was not part of this analysis.

Reference: Lancet 2016; published online Feb 23
Abstract

Clinical risk factors for pre-eclampsia determined in early pregnancy

Authors: Bartsch E et al.

Summary: This systematic review and meta-analysis of large cohort studies developed an evidence-based list of clinical risk factors that can be assessed by a clinician at ≤16 weeks' gestation to estimate a woman's risk of pre-eclampsia. A search of PubMed and EMBASE identified 92 large cohort studies involving 25,356,688 pregnancies that were suitable for inclusion. Meta-analysis of the data found that women with antiphospholipid antibody syndrome had the highest pooled rate of pre-eclampsia, followed by those with prior pre-eclampsia, then those with chronic hypertension. Pregestational diabetes, prepregnancy body mass index >30, and the use of assisted reproductive technology were other prominent risk factors.

Comment: Pre-eclampsia affects 3–5% of all pregnancies and threatens the health and life of the mother and her baby. Characterised by high blood pressure and protein in the urine, pre-eclampsia is a syndrome that can affect many organs including the brain, liver, lungs and kidneys. It can cause a woman to seize or have a stroke or kidney failure, and put fetuses at risk of premature birth and poor growth. Meta-analyses have shown a 53% reduction in relative risk for pre-eclampsia when aspirin is started at 12–16 weeks' gestation among high-risk women. Clinical practice guidelines have strongly recommended that physicians and midwives start treatment with aspirin at 12–16 weeks' gestation in a woman at high risk for pre-eclampsia. These guidelines however have not provided a systematic approach for identifying a woman at high risk by using readily available clinical risk factors known before 16 weeks' gestation. This meta-analysis provides an understanding of common risk factors of pre-eclampsia previously not known. The researchers identified the most influential clinical factors for pre-eclampsia, none of which require special testing, and all that can be collected by a midwife, obstetrician, family doctor or nurse practitioner at a woman's routine pregnancy visit. The new tool developed will improve how clinicians can identify women at high risk of developing pre-eclampsia, and who should take aspirin after 12 weeks of pregnancy. This would ensure that only women who are truly at high risk of pre-eclampsia are prescribed aspirin. The tool can also help distinguish women who are unlikely to benefit from aspirin therapy. The researchers state that the tool makes it very easy for any clinician to identify that person!

Reference: BMJ 2016;353:i1753
Abstract

Time spent reading this publication has been approved for CNE by The College of Nurses Aotearoa (NZ) for RNs and NPs. For more information on how to claim CNE hours please CLICK HERE

Midwifing the notion of a 'good' birth: a philosophical analysis

Authors: Smythe E et al.

Summary: This NZ paper examined the factors involved in a good birth experience. The focus of the paper was the story of one woman. It was her second birth; her first birth involved a lot of medical intervention. Listening to her story, it was clear that her second birth experience was good because everything was gathered together in a coherent and supportive manner.

Comment: I chose this article to review as a reminder to us that in this world of increasing risks, interventions and complexities we do share positive birth experiences with women. For most of us it is these experiences that sustain us in midwifery practice. In this woman's story it appears that everybody had a hand in shaping the experience (had knowledge and information to do this), listened to each other, respected each other's values, felt involved and present. There appears to be meaningful connectedness, safety, security and trust in each one involved in the process. There is a feeling of the woman finding the sacredness in her own experience and feeling something magical. All that were present were confident in the ability for the woman to birth and have a different experience to the one before. Confidence enables us to perform our role effectively and provide women with the choices they require. To feel confident in the environment/place we need community, woman, family/whanau and colleagues to be positive and manage tension and conflict appropriately. We need to recognise that we are all autonomous (including the woman) and take responsibility for the decisions we make. Being familiar with the environment enhances confidence and we all know this from when we support women to birth in a place that is new to us and this affects the women too – they need to be familiar with the environment they have chosen to birth. Confidence is fragile and we need strategies to maintain confidence. This article gives us an opportunity to reflect on what made birth a good experience for women we have provided care to, and acknowledge that it is not just one factor that influences the notion of a good birth.

Reference: Midwifery 2016;37:25-31
Abstract

The tensions of uncertainty: Midwives managing risk in and of their practice

Authors: Skinner J & Maude R

Summary: This report examined how midwives in NZ manage risk in their practice. It describes a theoretically and empirically derived model of midwifery – a three legged birth stool. The seat of the stool is 'being with women' and the legs are 'being a professional', 'working the system' and 'working with complexity'. The struts holding the stool together are 'story telling'.

Comment: Risk is present in both our personal and professional life. As the midwife in this study mentions there is always one leg of the stool missing. How we perceive risk has changed worldwide. We have become risk averse. We all believe we can prevent, control and manage risky situations. Hence the focus of birth has shifted from uncertainty towards risk prevention. The use of the words "safe, vulnerable, harm" has changed the way we view childbirth, resulting in our reluctance to accept even a minimal possibility of risk. This is demonstrated by our existing maternity practices where potential for over-monitoring is present in absence of risk factors. The reluctance to accept minimal possibility of risk also places the practitioner (midwife) at risk resulting in a change in the way midwifery care is offered/provided. The language we use may also magnify risk, for example "there are no doctors in the birthing unit – if you need medical input, you will have to be transferred". This article does not just present findings on how midwives view and manage risk in and of their practice in NZ but reviews and analyses the theoretical concept of risk. The way risk is perceived by practitioners involved in maternity care and women is different. We need to deepen our understanding of attitudes to risk and appreciate how they have an impact on the care provided.

Reference: Midwifery 2016;38:35-41
Abstract

A feasibility randomised controlled trial of acupressure to assist spontaneous labour for primigravid women experiencing a post-date pregnancy

Authors: Mollart L et al.

Summary: This feasibility study evaluated the use of acupressure for assisting spontaneous labour in women with a post-date pregnancy. 67 healthy primigravid women with a post-date pregnancy were given study information. 44 of them (65.6%) agreed to participate and were randomised to receive standard clinical care alone or in conjunction with advice on the self-administration of 3 acupoints to be used until spontaneous or induced labour began. The rate of spontaneous onset of labour did not differ significantly between groups (50% acupressure vs 41% control).

Comment: WHO defines complementary and alternative medicine (CAM) as a "broad set of health care practices that are not part of that country's own tradition and are not integrated into the dominant health care system". There have been suggestions in the literature that studies assessing CAM use during pregnancy have limitations in terms of study design, reporting, lack of appropriate definitions of CAM and the frequent use of convenience sampling. Six international RCTs have examined the effect of acupressure on already established labour, uterine contractions, labour duration and pain level. They found a shortened first stage of labour and a decrease in the labour pain score compared to placebo or standard care. This was the first Australian and international feasibility RCT undertaken to see if the use of acupressure increases the likelihood of spontaneous onset of labour in women (primigravida) whose pregnancy has progressed beyond the due date. Women in the intervention group received verbal and written instructions on the self-administration of 3 acupoints (Spleen 6, Large Intestine 4, and Gall Bladder 21) to be used until spontaneous labour occurred or induction of labour was commenced. The women in the study found the protocol of 2-hourly application for 2 minutes each time acceptable with a high rate of compliance with nearly all acupressure group women using the 3 acupressure points. Women were also willing to be participants in the RCT and complete questionnaires although there were challenges with women agreeing to be randomised. The study was unable to demonstrate a statistically significant effect of acupressure for the initiation of labour however the effect size obtained has enabled the calculation of a sample size for a future RCT and the study adds to the body of knowledge about the use of CAM in maternity care. As the prevalence of acupressure use was high in the hospital sites chosen for the feasibility study it created some challenges to recruit women. The authors felt it would be prudent that a future study be undertaken at a hospital site where acupressure use was not well established.

Reference: Midwifery 2016;36:21-7
Abstract